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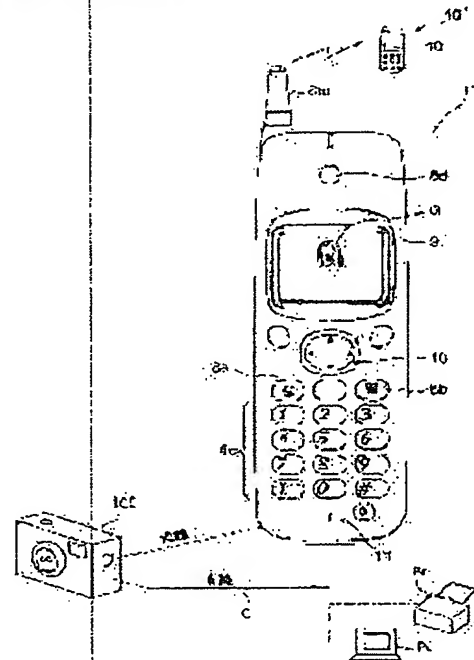
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(54) PORTABLE TELEPHONE AND PORTABLE TELEPHONE SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a portable telephone and a portable telephone system which supplement the function of an electronic picture recorder like an electronic still camera.

SOLUTION: Though an electronic still camera 100 is not provided with a picture processing means, picture data is read out from the electronic still camera 100 and is subjected to picture processing so that a picked-up picture can be appreciated through a display device 9 normally equipped in a portable telephone 10. Since it is unnecessary to provide the electronic still camera 100 with a picture processing means, the cost is reduced.



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CLAIMS

[Claim(s)]

[Claim 1] The cellular phone characterized by having a receiving means to receive image data from electronic image recording equipment, an image-processing means to perform an image processing to said image data, and an output means to output the image data by which the image processing was carried out with said image-processing means.

[Claim 2] Said output means is a cellular phone according to claim 1 characterized by being the display which displays an image based on said image data.

[Claim 3] Said output means is a cellular phone according to claim 1 or 2 characterized by being transfer equipment which transmits said image data to external equipment.

[Claim 4] The equipment of said exterior is a cellular phone according to claim 3 characterized by being a printer.

[Claim 5] The cellular phone according to claim 1 to 4 characterized by having a transmitting means to transmit a command signal, to said electronic image recording equipment.

[Claim 6] Said cellular phone is a cellular phone according to claim 1 to 5 characterized by being ability ready for receiving about the data about the program which performs the image processing performed with said image-processing means.

[Claim 7] The cellular phone characterized by having a receiving means to receive the image data by which an image processing is not carried out from electronic image recording equipment, and a transfer means to transmit the image data from said electronic image recording equipment to the exterior.

[Claim 8] The cellular phone according to claim 1 to 7 united with said electronic image recording equipment by connecting through a connector.

[Claim 9] The cellular phone according to claim 1 to 8 united with a printer by connecting through a connector.

[Claim 10] The 1st receiving means which receives image data from electronic image recording equipment, and an image-processing means to perform an image processing to said image data, The 1st cellular phone equipped with a transfer means to transmit the image data by which the image processing was carried out with said image-processing means. The cellular-phone system characterized by having the display which displays an image based on the image data which received with the 2nd receiving means which can receive the image data transmitted by said transfer means, and said 2nd receiving means, and the 2nd cellular phone which it had.

[Claim 11] Said 2nd cellular phone is a cellular-phone system according to claim 10 characterized by having a transmitting means to transmit a command signal, to said 1st cellular phone.

[Claim 12] It is the cellular-phone system according to claim 11 characterized by being the information for which transfer of a sound is possible between said 1st cellular phone and said 2nd cellular phone, and said command signal used the sound.

[Claim 13] It has mutually the 1st cellular phone and 2nd cellular phone which can communicate.

Between said 1st cellular phone and said 2nd cellular phone Although transfer of a sound is possible, and transfer of said sound is permitted when image data with small data volume is transmitted to said 2nd cellular phone from said 1st cellular phone It is the cellular-phone system characterized by having a limit means to forbid transfer of said sound when image data with big data volume is transmitted to said 2nd cellular phone from said 1st cellular phone.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the cellular phone which can receive image data.

[0002]

[Description of the Prior Art] While it is useful in respect of the ability of the instancy nature of an image output, and image processing after photography to do easily the electronic "still" camera which is electronic image recording equipment, a thing including the complicatedness using a personal computer and a printer of image output actuation and these equipments expensive in price is a problem, and simplification of the further actuation and low-pricing are desired.

[0003]

[Problem(s) to be Solved by the Invention] Here, in order to attain simplification of an electronic "still" camera, and low-pricing, it is possible to reduce components mark. On the other hand, when even necessary minimum components reduce in an electronic "still" camera, there is a problem of it becoming impossible to demonstrate the function.

[0004] On the other hand, the multi-functionalized cellular phone is developed with development of communication technology. There are some which have for example, an electrochromatic display screen, and also have CPU of high performance in this cellular phone. Moreover, a cellular phone also has the actual condition that there are much those who have spread widely and possess.

[0005] This invention aims at offering the cellular phone and cellular-phone system with which the function of the electronic image recording equipment like an electronic "still" camera is suppliable.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the cellular phone of the 1st this invention is characterized by having a receiving means to receive image data from electronic image recording equipment, an image-processing means to perform an image processing to said image data, and an output means to output the image data by which the image processing was carried out with said image-processing means.

[0007] The cellular phone of the 2nd this invention is characterized by having a receiving means to receive the image data by which an image processing is not carried out from electronic image

recording equipment, and a transfer means to transmit the image data from said electronic image recording equipment to the exterior.

[0008] 1st receiving means by which the cellular-phone system of the 3rd this invention receives image data from electronic image recording equipment, The 1st cellular phone equipped with an image-processing means to perform an image processing to said image data, and a transfer means to transmit the image data by which the image processing was carried out with said image-processing means. It is characterized by having the display which displays an image based on the image data which received with the 2nd receiving means which can receive the image data transmitted by said transfer means, and said 2nd receiving means, and the 2nd cellular phone which it had.

[0009] The cellular-phone system of the 4th this invention has mutually the 1st cellular phone and 2nd cellular phone which can communicate. Between said 1st cellular phone and said 2nd cellular phone Although transfer of a sound is possible, and transfer of said sound is permitted when image data with small data volume is transmitted to said 2nd cellular phone from said 1st cellular phone When image data with big data volume is transmitted to said 2nd cellular phone from said 1st cellular phone, it is characterized by having a limit means to forbid transfer of said sound.

[0010]

[Function] A receiving means to receive image data from electronic image recording equipment according to the cellular phone of the 1st this invention, Since it has an image-processing means to perform an image processing to said image data, and an output means to output the image data by which the image processing was carried out with said image-processing means For example, even if electronic image recording equipment does not have an image-processing means, the image picturized by the cellular phone through the indicating equipment (display) usually equipped can be appreciated by reading image data from this electronic image recording equipment, and performing an image processing to this. Moreover, it becomes unnecessary to form an image-processing means in electronic image recording equipment, and the low cost-ization can be attained.

[0011] That is, if said output means is the display which displays an image based on said image data, the image picturized with this display can be appreciated.

[0012] On the other hand, **** said whose output means is transfer equipment which transmits said image data to external equipment, and the image data by which the image processing was carried out can be transmitted to a personal computer etc., and image composition can be performed.

[0013] Furthermore, if the equipment of said exterior is a printer, it can print an image based on the image data by which the image processing was carried out.

[0014] Moreover, if it has a transmitting means to transmit a command signal, to said electronic image recording equipment, since remote control of turning on and off, release, etc. of the stroboscope of said electronic image recording equipment can be carried out, for example, it is convenient.

[0015] Furthermore, if said cellular phone serves as ability ready for receiving in the data about the program which performs the image processing performed with said image-processing means, since it can process by reading the newest program if needed, for example by download from the Internet etc.. it is convenient.

[0016] Since the cellular phone of the 2nd this invention has a receiving means to receive the image data by which an image processing is not carried out from electronic image recording equipment, and a transfer means to transmit the image data from said electronic image recording equipment to the exterior For example, even if electronic image recording equipment does not have an image-processing means, the optimal image processing for this image data can be performed by reading image data from this electronic image recording equipment, and transmitting this to the equipment of the exterior which can perform various image processings etc. Thereby, it becomes unnecessary to form an image-processing means in electronic image recording equipment and a cellular phone, and those low cost-ization can be attained.

[0017] in addition, the thing which said cellular phone connects through a connector -- said

electronic image recording equipment -- or it is convenient handling if it unites with a printer.

[0018] The 1st receiving means which receives image data from electronic image recording equipment according to the cellular-phone system of the 3rd this invention, The 1st cellular phone equipped with an image-processing means to perform an image processing to said image data, and a transfer means to transmit the image data by which the image processing was carried out with said image-processing means, Since it has the display which displays an image based on the image data which received with the 2nd receiving means which can receive the image data transmitted by said transfer means, and said 2nd receiving means, and the 2nd cellular phone which it had For example, since it can be made to display on the display of the 2nd cellular phone by transmitting the image data through the 1st cellular phone when an image is picturized with electronic image recording equipment in a remote place, Since [that it is receivable with the 2nd cellular phone] it restricts and an image can be observed also in which location, it is convenient.

[0019] Furthermore, if it has a transmitting means to transmit a command signal, to said 1st cellular phone, since said 2nd cellular phone can carry out remote control of turning on and off, release, etc. of the stroboscope of said electronic image recording equipment, for example, it is convenient.

[0020] Moreover, transfer of a sound is possible between said 1st cellular phone and said 2nd cellular phone, and if it is a signal about a sound, since said command signal can transmit directions to the message person of said 1st cellular phone and can make the image pick-up direction of said electronic image recording equipment etc. change with the voice which is one of the sounds, it is desirable.

[0021] According to the cellular-phone system of the 4th this invention, it has mutually the 1st cellular phone and 2nd cellular phone which can communicate. Between said 1st cellular phone and said 2nd cellular phone Although transfer of a sound is possible, and transfer of said sound is permitted when image data with small data volume is transmitted to said 2nd cellular phone from said 1st cellular phone Since it has a limit means to forbid transfer of said sound when image data with big data volume is transmitted to said 2nd cellular phone from said 1st cellular phone, and an image data transfer with big data volume can be performed quickly, it is convenient.

[0022]

[Embodiment of the Invention] Hereafter, with reference to a drawing, the gestalt of operation of this invention is explained in detail. Drawing 1 is the block diagram of the electronic "still" camera 100 shown as an example of electronic image recording equipment. In an electronic "still" camera 100, according to ON actuation of a main switch 111, power is supplied to CPU110 from the power source 112 of a dc-battery etc., and it controls the memory 104 and the stroboscope 113 as the image pick-up means 103, such as CCD, and a record means in drawing 1. The stroboscope 113 containing the capacitor for luminescence starts the charge for luminescence, only when ON actuation of the strobe light switch 114 is carried out.

[0023] Moreover, if the charge mechanism 107 drives a shutter 102 according to ON actuation of the release switch 108, the image pick-up means 103 as a photo-electric-conversion means by which image formation was carried out to the light-receiving side in the optical image with the taking lens 101 will perform the so-called photo electric conversion which outputs the analog signal corresponding to the optical image of a photographic subject under control of CPU110 through the shutter 102 opened wide. The analog signal acquired by photo electric conversion is recorded on memory 104 as a picture signal (image data), after being changed into a digital signal with an analog signal. Corresponding to actuation of the charge mechanism 107, photography number of sheets is displayed on the number-of-sheets display 109. The picture signal memorized by memory 104 is outputted to the exterior through a buffer 105 and a connector 106 under control of CPU110.

[0024] Drawing 2 is the block diagram showing the cellular phone concerning the gestalt of this operation. MPU5 of a cellular phone 10 performs control action in response to an electric power supply from the power source 7 of a built-in cell etc. If the partner telephone number is inputted under control of MPU5 using ten key 8c when carrying out submission operation first, 8f of transmit/receive control circuits sends out the inputted telephone number to sending-circuit 8j

through 8g of modulation circuits. In sending-circuit 8j as a transmitting means, the subcarrier of subcarrier synthesizer 8i is overlapped and it is transmitted through common machine 8k and antenna 8m. A message will become possible if there is a response of the purport connected with the partner.

[0025] Furthermore, modulation processing predetermined in a modulation circuit 18 is made, and the sound signal from a microphone 11 and the picture signal from MPU5 are sent to the other party through sending-circuit 8j. On the other hand, the electric wave from a partner is received through antenna 8m and common machine 8k at 8h of receiving circuits. A carrier component is removed and it gets over by demodulator circuit 8e at 8h of receiving circuits. The sound signal to which it restored is reproduced from loudspeaker 8d, and the picture signal to which it restored is displayed with the display 9 like a liquid crystal display.

[0026] In addition, from the memory 104 of the electronic "still" camera 100 connected possible [a communication link] through the interface 6, MPU5 reads a picture signal and can perform image processings, such as color conversion, now for this picture signal in the image-processing circuit 3. The picture signal with which the image processing was performed can be memorized by memory 4.

[0027] Furthermore, when the digital signal which carried out A/D conversion of the analog signal from the image pick-up means 103 to the memory 104 of the electronic "still" camera 100 which drawing 1 shows is memorized, in case the interface 6 of a cellular phone 10 reads a picture signal from an electronic "still" camera 100, it passes a digital signal as it is. On the other hand, when the analog signal from the image pick-up means 103 is memorized as it is by the memory 104 of an electronic "still" camera 100, in case a picture signal is read to it from an electronic "still" camera 100 by making the interface 6 of a cellular phone 10 demonstrate an A/D-conversion function, it can be made to pass, after carrying out A/D conversion to an analog signal. In this case, it becomes unnecessary to prepare an A/D-conversion function in an electronic "still" camera 100, and an electronic "still" camera 100 serves as low cost more.

[0028] Drawing 3 is drawing showing the cellular phone 10 of the gestalt of this operation in the condition of having connected with the electronic "still" camera 100. At the time of an image pick-up, it may be separated from the cellular phone 10. The release signal from the release switch 108 is received, a shutter 102 is driven, and CPU10 of an electronic "still" camera 100 carries out photo electric conversion of the optical image obtained during shutter disconnection with the image pick-up means 103, and changes it into a picture signal. This picture signal is memorized by memory 104.

[0029] Here, although the electronic "still" camera 100 has structure [that it is simple and low cost] since it does not have the image-processing circuit and the display, the way things stand, appreciating the photographed image cannot process composition of an image etc., either.

[0030] Then, as shown in drawing 3, a cellular phone 10 and an electronic "still" camera 100 are connected possible [a communication link] with radio communication equipments, such as telecommunication cable C or IrDA, and a picture signal is transmitted to a cellular phone 10. A cellular phone 10 receives a picture signal through the interface 6 as a receiving means, and performs a predetermined image processing by the image-processing circuit 3 as an image-processing means. The picture signal by which the image processing was carried out is memorized by memory 4.

[0031] MPU5 will read a picture signal from memory 4, and the user who asks for appreciation of an image will display an image on the display 9 as an output means, if a predetermined input is performed from ten key 8c. Here, if the user who asks for the print of an image connects a cellular phone 10 to Printer Pr instead of an electronic "still" camera 100, the data with which the image processing of the memory 4 was carried out will be transmitted to Printer Pr through the interface 6 as an output means, and a desired image will be printed. At this time, MPU5 of a cellular phone 10 functions as a driver of Printer Pr.

[0032] On the other hand, the user who asks for composition of an image etc. can transmit the data with which the image processing of the memory 4 was carried out to a personal computer PC through the interface 6 as a transfer means, if a cellular phone 10 is connected to a personal computer Pc. In memory 4, since image data is changed into general-purpose graphics formats,

such as a JPEG format, it can compound images, such as a panorama image, easily using the software installed in the personal computer.

[0033] In addition, although the image-processing software used in the image-processing circuit 3 of a cellular phone 10 can also be stationed permanently from the offered beginning, it may be downloaded through 8h of receiving circuits from networks, such as the Internet, if needed.

[0034] Furthermore, the configuration of an electronic "still" camera 100 can be simplified more by using a cellular phone 10. Command signals, such as a release actuating signal of an electronic "still" camera 100 and an on-off signal of a strobe light switch, can also be transmitted to an electronic "still" camera 100 from a cellular phone 10 by the input of ten key 8c on the assumption that an electronic "still" camera 100 and a cellular phone 10 are always operated to coincidence. Thereby, the release switch 108 and strobe light switch 114 of an electronic "still" camera 100 are omissible. In addition, if a command signal can be transmitted to an electronic "still" camera 100 from a wireless type communication device, the time of self photography etc. will be convenience.

[0035] Moreover, if a cellular phone 10 and an electronic "still" camera 100 are connected through Cable C etc., since an electronic "still" camera 100 can also be operated using the power of a cellular phone 10, in this case, a power source 112 and a main switch 111 can be omitted, and the configuration of an electronic "still" camera 100 can be simplified more.

[0036] Furthermore, in drawing 3, if the electronic "still" camera camera 100 and the cellular phone (the 1st) 10 are connected, image data can be transmitted from a cellular phone 10 through a wireless circuit to another cellular-phone 10' (the 2nd) (or the usual telephone equipped with the liquid crystal display). There are two kinds of these image data, the amount of data of one for a preview is small, and the amount of data of another for minute image reconstructions is [**] large.

[0037] a cellular phone -- ten -- ten -- ' -- from -- becoming -- a cellular phone -- a system -- actuation -- explaining -- if -- for example -- an electronic "still" camera -- 100 -- from -- having separated -- a remote place -- it is -- a cellular phone -- ten -- ' -- a user -- a cellular phone -- ten -- minding -- an electronic "still" camera -- 100 -- having picturized -- an image -- being related -- a preview -- ** -- an image -- a data transfer -- it can receive . The image to apply is observable by display 10a[of cellular-phone 10']:

[0038] Here, since the image data for a preview has comparatively few amounts of data transfer, it can perform a bidirectional message in parallel to image data transfer. Therefore, since the user who is a cellular phone 10 receives directions from the user of cellular-phone 10' and can change the location and direction of an electronic "still" camera 100, weaving in a question etc. suitably, he can get the image for which the user of cellular-phone 10' which is present in a remote place asks.

[0039] furthermore -- a remote place -- it is -- a cellular phone -- ten -- ' -- a user -- wanting -- an image -- it can obtain -- a location -- a direction -- having become settled -- a case -- this -- a condition -- an electronic "still" camera -- 100 -- a side -- it is -- a cellular phone -- ten -- a user -- this -- fixing -- a remote place -- it is -- a cellular phone -- ten -- ' -- a user -- a signal -- release -- it can carry out -- thereby -- this -- a user -- wanting -- an image -- it can obtain . In this case, if a command signal is sent from cellular-phone 10' which is present in a remote place, since turning on and off and release of the stroboscope of an electronic "still" camera 100 are performed, an image pick-up will be possible [it is actuation of this user, for example,] to more positive timing.

[0040] Thus, the obtained image data becomes remarkable large capacity, when it is a high definition image. Then, when transmitting this mass image data, it can transmit quickly by using to the frequency of a message band and performing wireless transmission. Although a cellular phone 10 and the message between 10' may become impossible since a message is restricted by MPU5 which is a limit means in this case, the desired image pick-up has already been performed and it is thought that there is especially no problem.

[0041] Drawing 4 is drawing showing the cellular phone 20 concerning the gestalt of the 2nd operation. The cellular phone 20 forms the stowage 21 in the upper part. The stowage 21 has prepared the connector (un-illustrating) which can communicate when it has the configuration

where an electronic "still" camera 100 is acceptable and an electronic "still" camera 100 is received. In addition, the function of a cellular phone 20 is the same as that of the gestalt of operation mentioned above.

[0042] If an electronic "still" camera 100 is contained to the stowage 21 of a cellular phone 20 as shown in drawing 4 (a), since a cellular phone 20 and an electronic "still" camera 100 are united, if a taking lens 101 is turned to a near side, after an electronic "still" camera 100 will picturize a message person's face image and they will perform an image processing to the obtained image data with a cellular phone 20, they can be transmitted to a phase hand. On the other hand, if a taking lens 101 is turned to the other side, an electronic "still" camera 100 will picturize the photographic subject image which the message person is looking at, and the transfer of it will be attained at a phase hand. In this case, the command signal which can display the image picturized by the display 23 of a cellular phone 20, and performs release of an electronic "still" camera 100 etc. using a ten key 22 can be sent.

[0043] If a cellular phone 20 and an electronic "still" camera 100 are connected possible [a communication link] with wireless means, such as Cables C and IrDA, even if it makes an electronic "still" camera 100 separate from the stowage 21 of a cellular phone 20 as shown in drawing 4 (b), after a cellular phone 20 performs an image processing, the transfer to a phase hand will be attained in the image data obtained by the image pick-up of an electronic "still" camera 100.

[0044] In addition, it is good for the stowage 21 of a cellular phone 20 also as a configuration which can contain the printer Pr of the same configuration as an electronic "still" camera 100. After making a cellular phone 20 and an electronic "still" camera 100 the image data obtained by the image pick-up of an electronic "still" camera 100 coalesce in this case, reading to a cellular-phone 20 side, performing an image processing and memorizing in memory, Printer Pr is made to coalesce instead of an electronic "still" camera 100, and you may enable it to output a print. Moreover, you may make it make an electronic "still" camera 100 and Printer Pr coalesce in a cellular phone 20 to coincidence (in for example, serial condition).

[0045] Not only the gestalt of the above operation but the cellular phone 20 may be equipped with the interface which may contain the printer or can be connected to an external printer.

[0046]

[Effect of the Invention] According to this invention, the cellular phone and cellular-phone system with which the function of the electronic image recording equipment like an electronic "still" camera is suppliable can be offered.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram of the electronic "still" camera 100 shown as an example of electronic image recording equipment.

[Drawing 2] It is the block diagram showing the cellular phone concerning the gestalt of this

operation.

[Drawing 3] It is drawing showing the cellular phone 10 of the gestalt of this operation in the condition of having connected with the electronic "still" camera 100.

[Drawing 4] It is drawing showing the cellular phone 20 concerning the gestalt of the 2nd operation.

[Description of Notations]

100 Electronic "still" Camera

10 20 Cellular phone

P Printer

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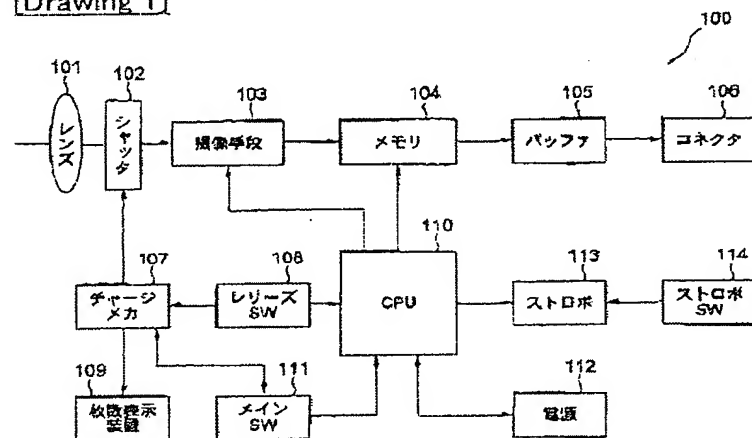
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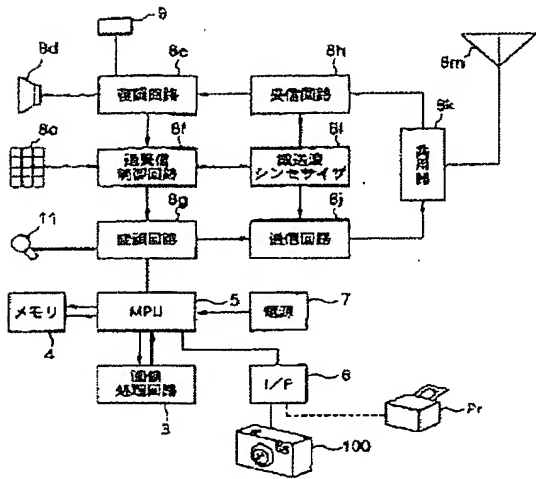
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DRAWINGS

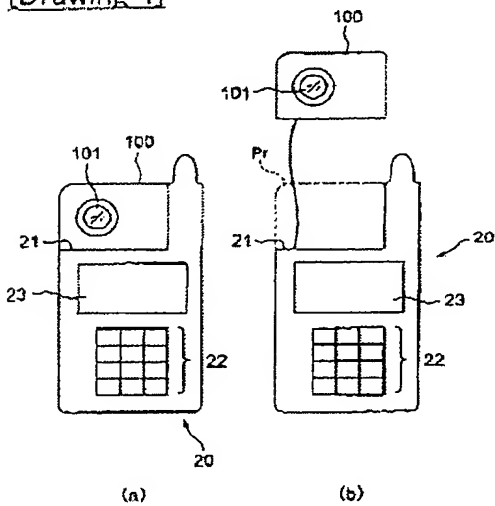
[Drawing 1]



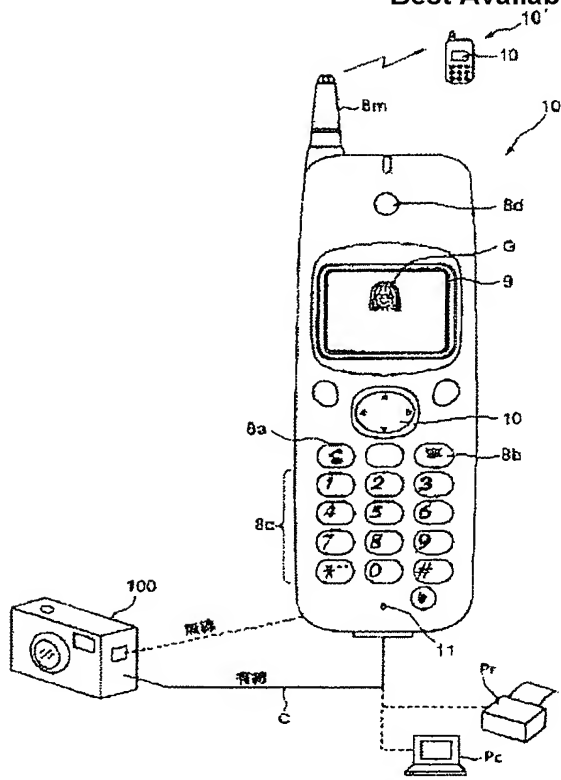
[Drawing 2]



[Drawing 4]



[Drawing 3]



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